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INTRODUCTION.

The present Summary for 1899 is based essentially upon data received from about 150 regular stations, 28 regular Canadian stations, and a number of voluntary stations whose annual summaries were received in time. A revised chart of total annual precipitation will be published in the Annual Report of the Chief of the Weather Bureau when the data from all voluntary stations have been received. The statistical tables and charts have been prepared under the supervision of Prof. A. J. Henry, Chief of the Division of Meteorological Records. The tables of movements of high and low areas and the summary of flood movements have been prepared by Dr. H. C. Frankenfield, Forecast Official.

Annual summaries were not received from all West Indian stations in time for use in this report.

FORECAST DIVISION.

By Prof. E. B. GARRIOTT, in charge of Forecast Division.

HIGHS AND LOWS OF 1899.

During 1899 the data regarding highs and lows were compiled according to the plan pursued in compiling those of the years 1895 to 1898, inclusive. The mean velocities for 1899 were slightly higher than those for the preceding four years, the excess, however, being confined to the six colder months, with a maximum in January for the highs of 30.8 miles an hour, and of 36.5 miles in December for the lows.

On the whole the highs and lows present few points of difference, when compared with those of the preceding four years. They appear within narrow limits over a certain district, and disappear over another equally well defined, moving from the one district to the other with a remarkably uniform velocity. These statements can readily be verified by an inspection of the tables following:

Summary of highs and lows, 1899.

Month.	Highs.							Lows.						
	Mean first observed.		Mean last observed.		Path, average.		Hourly velocity.	Mean first observed.		Mean last observed.		Path, average.		Hourly velocity.
	Lat. N.	Long. W.	Lat. N.	Long. W.	Length.	Duration, days.		Lat. N.	Long. W.	Lat. N.	Long. W.	Length.	Duration, days.	
	°	°	°	°	*Miles.*			°	°	°	°	*Miles.*		
Jan....	49	110	38	72	2,668	4.0	30.8	43	109	46	61	2,518	3.1	35.2
Feb....	53	113	41	67	3,225	5.9	27.1	37	111	45	60	3,040	4.0	33.3
Mar....	51	111	42	70	2,370	4.4	22.7	45	115	47	60	3,303	4.8	30.2
Apr....	48	123	42	75	3,182	7.1	19.4	42	116	44	74	2,662	4.6	25.0
May....	47	113	40	70	2,860	5.0	24.9	47	115	46	73	2,737	5.1	23.6
June...	45	118	37	75	3,004	5.7	22.0	50	117	46	68	3,295	5.9	24.0
July...	51	110	43	72	2,335	4.7	20.4	47	107	48	64	2,211	4.7	20.9
Aug....	45	117	46	66	2,940	5.9	24.3	44	109	45	81	1,957	5.2	16.7
Sept....	46	122	41	70	3,762	6.7	23.5	48	114	47	66	2,880	4.3	27.9
Oct....	46	113	44	69	2,660	4.8	23.3	38	104	47	77	2,079	3.6	25.3
Nov....	47	113	42	78	2,473	4.4	25.2	42	109	44	69	2,310	3.8	25.9
Dec....	44	106	40	86	1,675	2.2	30.5	43	105	42	73	1,869	2.2	36.5
Means..	47	114	41	73	2,763	5.1	24.5	44	111	46	68	2,572	4.3	27.0

The accompanying table exhibits a compilation of the data on these principles. At the end of each year the average for the six cold and six warm months has been computed, and there is added here a summary of the five years.

Summary, 1895 *to* 1899, *inclusive.*

Year.	Highs.					Lows.				
	Mean first observed.		Mean last observed.		Hourly velocity.	Mean first observed.		Mean last observed.		Hourly velocity.
	Lat. N.	Long. W.	Lat. N.	Long. W.		Lat. N.	Long. W.	Lat. N.	Long. W.	
	°	°	°	°		°	°	°	°	
1895.....	47	110	39	80	24	45	107	45	73	26
1896.....	48	111	42	75	24	46	111	46	74	26
1897.....	48	113	38	78	24	46	110	46	71	26
1898.....	46	114	40	72	25	45	111	46	67	26
1899.....	47	114	41	73	24	44	111	46	68	27
Means....	47	112	40	75	24	45	110	46	71	26

Mean velocity by cold and warm months is as follows:

Year.	Mean velocity.			
	Highs.		Lows.	
	Cold.	Warm.	Cold.	Warm.
	Miles.	*Miles.*	*Miles.*	*Miles.*
1895.....	27	22	30	23
1896.....	25	23	28	24
1897.....	25	22	29	23
1898.....	26	23	29	23
1899.....	27	23	31	23
Mean.....	26	22	29	23

H. C. Frankenfield, Forecast Official.

RIVER AND FLOOD SERVICE.

By H. C. FRANKENFIELD.

The River and Flood Service has been somewhat extended during the past year in order to meet growing demands. Reports are now received from nearly 200 river stations and 42 rainfall stations. The following table briefly summarizes the work of the year in a purely statistical way. Detailed reports may be found in the regular monthly Reviews.